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Effects of Emergency Preparedness and Disaster Response on Hospital Focusing on
Ancillary and Support Services: Policy Analysis

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Abstract

Emergency preparedness and disaster response requires collaboration, training, personnel, equipment, supplies and large amounts of funding. Disaster response strains not only the emergency departments of hospitals, but also the ancillary and support services that are vital to providing patient care. Hospitals are burdened with using patient revenues to fund preparedness and at a time of great competition, prospective payment and less government reimbursement, hospitals need an avenue to fund emergency preparedness. The purpose of this paper is to explore how these services are affected by emergency preparedness and disaster response and provide policy alternatives to funding emergency preparedness.

Table of Contents

<i>List of Tables</i>	5
<i>List of Figures</i>	6
<i>Introduction</i>	7
<i>Evidence</i>	8
<i>Alternatives</i>	22
<i>Criteria for Evaluation of Alternatives</i>	24
<i>Projection of Alternative Outcomes</i>	27
<i>Analysis of Trade-offs</i>	31
<i>Recommendation</i>	33
<i>Conclusion</i>	35
<i>References</i>	36

List of Tables

Table 1. Evaluation of funding options for emergency preparedness concerning political acceptability.

Table 2. Evaluation of funding options for emergency preparedness concerning justice.

Table 3. Evaluation of funding options for emergency preparedness concerning access.

Table 4. Benefits of raising cigarette taxes

List of Figures

Figure 1. Current state cigarette taxes per pack

Introduction

Hospitals are vital to meeting the full spectrum health care needs of the communities they serve. They provide a wide range of acute care and diagnostic services, support public health needs, and offer a multitude of other programs. Other health care providers perform many of the same services without having to meet the emergency preparedness concerns that hospitals must face. Compared to other providers, hospitals have several unique roles. Hospitals are expected to have the capability to treat patients at all times regardless of condition and ability to pay. Hospitals are also the primary source of care and shelter for victims of large-scale accidents, natural disasters, epidemics and terrorist actions. Hospitals must be the most prepared organizations due to their role in disaster response (American Hospital Association, 2005). In spite of all efforts to reduce threats and hazards, and to minimize the vulnerability to extreme events, these events will occur. When such an event does occur, the response and recovery effort requires an extensive commitment of funds and organizational resources (Harrald, 2004).

The purpose of this paper is to explore the demands that emergency preparedness and disaster response place on hospitals with primary emphasis placed on ancillary and support services. These demands include the need for additional personnel, training for personnel, equipment and considerable amounts of funding. The funding issue is extremely important because 2007 is the last of four years that the National Bioterrorism Hospital Preparedness Program (NBHPP), a department of the Health Resources and Services Administration (HRSA), will provide funding to assist hospitals with the preparation costs of meeting the overwhelming situation of treating victims of a bioterrorist attack. This program has provided an average of approximately \$100,000 per year per hospital. There is currently a proposal for the NBHPP to provide additional funding after 2007 which has not been approved as of yet. The purpose of the

NBHPP is to enhance the capabilities of hospitals to prepare for and respond to bioterrorism and other public health emergencies. The key areas of the program are improving bed and surge capacity, decontamination capabilities, isolation capacity, pharmaceutical supplies, and supporting training, education, drills and exercises.

Hospitals spend a great deal of time and resources on preparation activities including developing, testing, and refining disaster response logistics and clinical plans. These processes enable hospitals to quickly organize personnel, call in support, organize patient treatment plans and locations, procure and organize needed equipment and supplies, and coordinate with other facilities. This paper will present policy alternatives for funding these critical emergency preparedness activities.

Evidence

Disaster awareness has and always will be around, recent and current events which have increased the awareness of the importance of being prepared and to being able to react efficiently and effectively to natural or manufactured disasters. Planning and prevention for such emergencies should be a coordinated effort of federal, state, county, and local agencies (Cosgrove, Mollie, Kohri, Edbert, Green & Feuerstein, 2004). Hurricanes Katrina and Rita raise serious questions concerning the capacities of local, state, and federal governments to deal with major hazards and disasters. Obviously, government officials are not prepared to deal with catastrophic events, including a terrorist attack or an avian influenza pandemic. Katrina and Rita raise long-term questions concerning the capacity to mitigate hazards and deal with disasters. The location of New Orleans, Louisiana complicated the situation during Katrina. New Orleans is essentially a small island and few American cities face the same drastic concerns associated with being an island in the wake of an approaching hurricane (Waugh, 2004).

Hospitals face increasing challenges in maintaining the role of treating patients 24/7 who may or may not be able to pay and the role of being prepared to meet the needs created by an emergency. These challenges include the loss of patients to the growing number of limited-service hospitals, physician owned hospitals and ambulatory surgery centers. Additionally Medicare reimbursements continue to fall and Medicaid eligibility restrictions continue to tighten leaving more and more people without the ability to pay.

Bioterrorism has also created complications for hospitals to be prepared to treat overwhelmingly high numbers of victims resulting from a terrorist attack. Shi and Singh (2004) state that "bioterrorism is the use of chemical biological, and nuclear agents to cause harm to relatively large civilian populations". The use of chemical and nuclear agents creates the need for decontamination to prevent the injury of those that are administering care. Furthermore, the use of a chemical agent could result in a great number of victims presenting to a hospital with little or no advance warning. In this case, the hospital must be able to decontaminate and treat those patients very quickly. In the past, the Hill-Burton Act matched funds for hospitals to increase capability but this no longer happens. Although excess capacity has long been considered a major problem for U.S. hospitals, overcrowding in the emergency department (ED) and the role that constrained inpatient capacity plays suggests a major change occurring in the hospital environment. In fact, after a decade of hospital downsizing and reducing operating costs, local health care systems have been left with little slack to accommodate unforeseen trends in inpatient volume (Emerging, 2002).

Hospitals must be staffed and equipped with trained competent personnel to provide access to care 24 hours a day, 7 days a week, 365 days a year. Likewise, Emergency Medical Services (EMS) must also be prepared at a moments notice. Local governments are responsible

for providing EMS and in most cases EMS are dependent on tax dollars for personnel, trucks and training. Another aspect of preparation lies in the hospital's ability to respond to over 1500 unique conditions ranging from ear infections to massive head trauma (New Britain General Hospital, New Britain, CT). According to the American Hospital Association, ED visits have increased by nearly 25 percent over the last decade resulting in 112.6 million ED visits per year with more than half of these visits taking place outside of normal business hours. Many of these patients are uninsured and the Emergency Medical Treatment and Active Labor Act requires hospitals to treat these emergency patients regardless of ability to pay. The many different and unpredictable needs of emergency care patients require hospitals to maintain an extensive array of resources. Level 1-trauma centers are required to have immediate availability of trauma surgeons, anesthesiologists, physician specialists, nurses, and resuscitation equipment. Patient visit volume can vary by well over 100 percent, hour to hour and day to day. Maintaining the ability to provide around the clock emergency care require staffing in multiple areas including the ED, laboratory, radiology, pharmacy, surgical services, general and intensive care units, labor and delivery, plus on-call physicians. These services also require additional support from environmental services, food services, linen services and security. In addition to treating emergency patients, small rural hospitals must also be able to stabilize more severely ill and injured patients and transfer them to regional referral centers (Prepared to Care, 2006).

While the role of hospitals and expectations of preparedness have grown, the number of beds and hospitals has been decreasing since the 1980s. The average bed capacity per hospital declined from 196 beds in 1980 to 169 beds in 2000 (DHHS 2002, 279). Occupancy rates in community hospitals declined from approximately 75.6 percent in 1980 to 63.9 percent in 2000. The length of stay has declined from 7.5 days in 1980 to 4.9 days in 2000 (DHHS 2002, 253,

279). These declines are a result of the shift from inpatient to outpatient care. Hospitals have attempted to compete in the outpatient market, but have been unable to recoup the revenues because of competition from private organizations and physician owned facilities. As a result of the inpatient revenue loss, hospital's share of national expenditures on hospital care has consistently declined since 1980 (Shi & Singh, 2004).

Hospitals have been pressured to downsize by changes in reimbursement and the impact of managed care. The Tax Equity and Fiscal Responsibility Act of 1982 created reimbursement based on diagnosis-related groups (DRGs). It also converted Medicare reimbursement from cost-plus to a prospective system based on DRGs. Medicare paved the way for several states to adopt similar methods in payment for services rendered to Medicaid enrollees. Private payers also resorted to competitive pricing, discounted pricing and the monitoring of when and for how long patients would be admitted to hospitals (Shi & Singh, 2004).

Managed care became a transforming force in health services by emphasizing cost containment and efficient delivery of healthcare services. Because inpatient care is extremely costly, managed care has emphasized alternative delivery settings, such as outpatient treatments, home health care, and the use of nursing homes. Managed care organizations have played a significant role in lowering hospital profitability. Hospitals have been forced to use consolidation strategies in an effort to cope with this loss in profitability (Shi and Singh, 2004).

Ancillary services are critical to the delivery of care. Clinical departments and providers could not deliver direct patient care without support services. Disaster preparedness and response have an immense impact on ancillary services much in the same way as it does on clinical and emergency departments. Ancillary departments need resources to adequately prepare for

contingencies. The following section of this paper will describe some of the major concerns of the ancillary departments of hospitals.

Logistics/Supply/Contracting

Logistics and contracting personnel are responsible for getting the resources that are needed during a contingency. These resources include pharmaceuticals, medical supplies and all types of equipment needed to treat patients with varying injuries. This task is complicated during a large-scale contingency because most of the facilities in a given area are likely to depend upon the same suppliers for supplies and equipment. Planning, not stockpiling, is the key to disaster preparedness, whether in response to natural events or terrorist attacks (Health Care Strategic Management, 2002). This planning includes sourcing and procurement, production scheduling, order processing, inventory management, transportation, warehousing, and customer service (Pavelich 1999). Contracting personnel should include surge clauses when negotiating with suppliers to ensure the availability of medical supplies and equipment during a contingency. Logisticians should integrate their disaster response procedures into day-to-day supply chain practices by maximizing supply rotations and increasing quality assurance (Hospital Materials Management, 2003). Knowing the right items and amount of material to meet patient needs is the starting point in building an effective support structure (Martin, 2006).

Current inventories and the location of supplies are very important during the initial stages of a contingency. Areas within the hospital that are not directly affected by the emergency can lend resources until new supplies can be delivered. Possible areas that will not be directly affected are obstetrics, oncology and outpatient surgery. These units could be modified with additional equipment and staff and be used in some other capacity. For example, the outpatient

surgery area could become a makeshift emergency room. Labor and delivery rooms could be fitted to accommodate surgical patients if Medical/Surgical units become filled.

Logisticians are also responsible for the transportation needs in most hospitals. The transportation of patients is critical during a disaster or contingency. The transport of patients from the scene to the hospital is one aspect of transportation that must be addressed. While this aspect is primarily handled by Emergency Medical Services (EMS), hospitals must address the transport of patients to tertiary and alternate care centers to free up space for the victims of the current contingency. Hospitals must also address the transportation of resources, personnel, supplies and equipment.

Laboratory

Laboratories have two main concerns in the event of a disaster. The first is following the provisions set forth by the Clinical Laboratory Improvement Amendments (CLIA) and the College of American Pathologists (CAP). CLIA establishes quality standards for all laboratories testing to ensure the accuracy, reliability and timeliness of patient test results (www.fda.gov). CAP performs a Laboratory Accreditation Program with the goal of improving patient safety by advancing the quality of pathology and laboratory services through education, standard setting, and ensuring laboratories meet regulatory requirements (www.cap.org). The second is maintaining the blood bank. Facilities must maintain inventories to be prepared for disasters at all times in all locations. The American Association of Blood Banks (AABB) recommends a seven-day supply of the combined inventory of both blood collectors and hospitals to be prepared for a disaster (Disaster Operations Handbook, 2003). Disasters of all types can put the blood supply at risk. According to the Red Cross, a single trauma victim can use 100 units of blood components in just a few hours. Another risk to the blood supply is the fact that blood is

perishable. Red blood cells must be used within 42 days and platelets must be used within 5 days. Hospitals are dependent on donors to keep the blood supply at an adequate level. During a natural disaster or terrorist attack, overwhelming amounts of people turn out to donate blood. This overwhelming turn out strains the resources of most laboratories and blood donation centers. On the other hand, in the event of a pandemic flu outbreak, people will be encouraged to stay home and away from places where people tend to congregate. This will cripple the blood supply because of the lack of donors.

Pharmacy

Pharmacies must be prepared to meet the increased need produced by a contingency. This means determining what types of drugs are needed during different contingencies and maintaining appropriate levels to treat a large number of patients before re-supply can take place. Pharmacy personnel must also develop a plan for rapid distribution of drugs in case of a contingency. Getting medications to the community is also the responsibility of pharmacies in case of quarantine and at times when transportation is restricted.

Today, most pharmacies operate under just-in-time inventory practices. A recent survey revealed that wholesaler on-time delivery of pharmaceuticals met or exceeded 91 % of pharmacists' expectations. Could this level of service be sustained after a disaster? Provisions need to be in place to ensure post disaster ordering and delivery. Pharmacies must consider on-hand levels, local stockpiles, post disaster delivery, and expect to be on their own for at least two full days before federal assets might be in place for dispensing medications to patients (Teeter, 2004).

The federal government has established the Strategic National Stockpile (SNS), which is a reserve of specialized supplies made up of 50-ton Push Packages consisting of pharmaceuticals

and medical supplies useful in airway management, IV fluid administration, antibiotics and antitoxins for treating casualties of various bioterrorism acts and antidotes for exposures to certain chemicals. Pharmaceuticals for primary care are not part of the SNS Push Packages so pharmacies should plan accordingly to have these types of medications on hand (Teeter, 2004).

Federal responsibility ceases at the delivery of the Push Packages to state-designated airports. It is then the responsibility of the state to break down and transport the components of the push-pack to the affected community. It is also at the state's discretion where push-pack material is distributed in the event of multiple events. Individual communities may not receive supplies at the expense of other affected areas. The federal government has set a 12-hour limit on push-pack deployment, however it is predicted that up to 48 hours will be required to deliver the push-pack supplies. Therefore, some supplies must be maintained by hospitals for immediate needs. The federal Metropolitan Medical Response Systems (MMRS) guidelines required MMRS communities to be self-sufficient for 48 hours (Krajewski, Sztajnkrzyer, & Baez, n.d.).

Whether preparing for mass antidote administration or the development of mass antibiotic prophylactic stations, hospitals must develop hospital and community specific plans including the provision of adequate pharmaceutical stockpiling. This may require the formation of hospital pharmacy consortiums or vendor agreements, providing the ability to rapidly obtain and distribute needed pharmaceutical supplies during a disaster (Krajewski, et al., n.d.).

Radiology

Radiology concerns during a disaster are related to equipment and personnel. Is there enough equipment to meet the needs of the patients and are there enough personnel to run the equipment? Victims of a disaster will have to be prioritized in order to utilize radiology assets in the most effective way. Radiology equipment is expensive and requires a great deal of space. A

balance has to be realized between meeting the average daily requirements of the radiology department and meeting the requirements during a contingency.

Security

The role of security personnel remains vital in case of a disaster or other contingencies. The primary responsibility of security personnel during a contingency is the security and safety of patients, visitors, staff and property. Furthermore, controlling access to the facility when necessary also falls under the responsibility of security staff. In case of a mass discharge of patients, security personnel will assist with traffic control, ensure a proper patient pick-up location, and ensure that these discharges do not interfere with emergency operations. In the event of quarantine, security personnel will staff the facility to prevent a breach of the quarantine perimeter. In the case of escape by a contaminated person from a quarantine area, security personnel are responsible for protecting uncontaminated individuals by using reasonable force. Local law enforcement resources will be strained in the event of an emergency; therefore, they will not be available to support individual hospitals (UHS-DPS Disaster Plan, 2003).

Legal Services

Responding to an emergency or disaster brings about many legal concerns. These concerns include upholding ethical standards and continuing to follow the provisions of the Emergency Medical Treatment and Active Labor Act and the Health Insurance Portability and Accountability Act. Also included is maintaining the standard of care for all patients regardless of the severity of the situation. Other concerns include prioritizing patients during triage and scheduling surgery and procedures for victims. During contingencies, hospitals attempt to move patients to increase capacity for taking on victims of the contingency. Scheduled surgeries and procedures are postponed if not considered life threatening by the medical staff. The

transportation of patients and postponement of care raise the liability for the hospital. Legal staff members need specific training for handling these situations and additional staff could be needed to meet the demands raised during a contingency.

Credentialing

Disasters of all types have a significant impact on already over tasked medical providers. During contingencies, there is a need for volunteer practitioners to aid the effected areas. JCAHO requires that all physicians must be credentialed by a hospital to be permitted to delivery medical care on behalf of that hospital.

While the credentialing process cannot be circumvented, it can be streamlined when the emergency management plan has been activated and the hospital is in need of assistance to meet the needs of the patients. JCAHO allows the Chief Executive Officer to grant emergency disaster response privileges to volunteer practitioners during emergency situations as long as the volunteer has a current state license to practice and a valid picture identification (ID) issued by a state, federal, or regulatory agency and one of the following: (1) A current hospital photo ID; (2) ID indicating that the individual is a member of the Disaster Medical Assistance Team; (3) ID indicating that the individual has been granted authority to render patient care in emergency circumstances by a federal, state or municipal entity; or (4) Presentation by current hospital or medical staff member with personal knowledge regarding practitioner's identity and qualification (Medical-Dental Staff Bylaws, n.d.). During Katrina, 30 providers received credentials to treat patients at University Hospital in San Antonio, Texas in just under 30 minutes. Without going through the credentialing process, providers will not have access to medical information systems to order medication, labs, x-rays and other test and treatments that are required to meet the needs of patients.

Information Systems

Information systems are vital in the delivery of care at all times. The importance of these systems does not diminish during a contingency. Patient identification, patient tracking and inventory management systems are vital to delivery of care when there are great numbers of patients arriving simultaneously. Systems are relied on heavily for ensuring proper reimbursement and bed utilization.

Nutritional Services

Nutritional services are responsible for feeding all the patients that are being treated within the hospital. In addition, most hospitals offer a cafeteria that is equipped to feed visitors and staff members. During a contingency, hospital nutritional services should expect a much higher number of patients, visitors and staff members and the possibility of staff members' families. Most facilities keep at least a three-day supply of food on hand. The supply of food would only be a problem in case the facility is cut off from re-supply.

Linen Services

The majority of hospital linen services is outsourced in today's health care environment. Therefore, used linen is collected and fresh linen is delivered to most hospitals on a daily basis. Hospitals should stockpile enough linen to meet the needs of a disaster response in case the hospital is cut off from re-supply.

Environmental Services

The concerns of environmental services focus on supplies and personnel. During a contingency, environmental personnel are directly behind clinical staff in priority for receiving vaccinations and preventative treatment in case of a pandemic outbreak. Without trained housekeeping and maintenance staff, there is the potential for nosocomial spread as well as

potential delay in the disposition and rooming of admitted patients. As long as the hospital is not cut off from re-supply, environmental services should continue without interruption (Krajewski, et al., n.d.).

Health care workers do not live in a vacuum and may be directly and personally affected by the disaster. Despite the critical role of ancillary staff in hospital functioning, these individuals may be more vulnerable to absenteeism during a disaster due to a lack of medical awareness regarding actual versus perceived personnel risks. Health care workers may be amongst the victims, as may their families. After a disaster that affects the local infrastructure, it may be necessary to provide safe shelter and food to the families of affected staff members. Without providing this, there will be little incentive for those staff members to report to work. Adequate staff contingency planning is a critical part of any disaster plan (Krajewski, et al., n.d.).

A disaster has been defined as a natural or manmade force with the destructive impact that overwhelms a community's ability to meet healthcare demands. The terrorist attacks of 9/11 have increased awareness of the limits of emergency response capabilities to meet the challenges of a contingency. The emergence of foreign state-sponsored terrorism, proliferation of chemical and biological agents, availability of materials and scientific weapons expertise, and recent increases in less discriminate attacks all point toward a growing threat of an unconventional mass casualty incident (MCI) (Training of hospital staff, 2004).

Preparing for MCIs is a daunting task for hospitals and communities. Every type of disaster has unique issues that must be considered. For example, the systemic sustained stress of a biothreat is completely different from that of a chemical disaster or any other acute-onset incident. Biological events may create large numbers of people requiring both emergency services and sustained medical care. Toner and Waldhorn (2006) estimated that preparing for the

pandemic flu would cost an average-sized hospital \$1 million and much more for larger institutions. The largest portion of this cost would come from stockpiling the needed personal protective equipment. Differences between scenarios hold challenging implications for preparedness training (Training of hospital staff, 2004).

JCAHO has issued new Environment of Care standards effective January 1, 2001. These standards require hospitals to develop cooperative planning among health care organizations that, together, provide services to a contiguous geographic area. The standards also require hospitals to test their emergency management plan twice a year, including at least one community-wide practice drill to assess communications, coordination and the effectiveness of command structures. Either actual emergencies or planned drills are acceptable, and they are to be conducted at least four months and no more than eight months apart (Training of hospital staff, 2004).

As observed with the global Severe Acute Respiratory Syndrome (SARS) outbreak, the healthcare delivery system is the CENTER of the response to a disaster. Unfortunately, the role of hospitals has been neglected. Improving the capabilities of hospitals needs to be a top priority. Disaster preparedness has been impeded by out-of-date hospital practices and the lack of coordination between critical functional units and between the hospital and outside organizations and agencies. Hospitals need to play a key role in developing disaster preparedness plans, and need to coordinate efforts with public health systems and with appropriate federal, state, and local agencies. This can be an issue with the JCAHO-required drills, as hospitals may be pressured to meet this requirement through standard training to avoid the costs of either disruption of services or planning and executing expensive drills. (Training of hospital staff, 2004).

The term "hospital preparedness" is a catchall phrase, covering a multitude of inter-related areas of medical and non-medical disaster management. Although JCAHO mandates specific standards for hospital preparedness, in many institutions these standards never extend beyond the written page. Prior to 9/11, hospital preparedness focused on either natural or unintentional man-made mass casualty events, including earthquakes, tornadoes, commercial building collapse, airline accidents and bus accidents. In contrast to Israel and European countries, and despite such events as the 1993 World Trade Center bombing and the 1995 Oklahoma City bombing, the spectrum of terrorism was remote from hospital disaster planning. Since 9/11, the reality of U.S. vulnerability to domestic terrorism has translated into an increased sense of urgency to prepare for potential terrorist acts (Krajewski, n.d.).

Disasters are typically viewed as low probability yet high impact events. Although various definitions have been used, a disaster is frequently viewed as a situation in which the number of patients presenting to the medical facility within a given time period exceed the ability of the hospital to provide care without external assistance. As such, the definition is institution specific, and therefore preparedness must be likewise institution specific. The same event may represent a disaster for a 30-bed hospital and simply tax the capacity of an 1800 bed institution (Krajewski, n.d.). There are currently 4919 hospitals in the United States. Nearly one-half, 48.1 percent, have less than 100 beds. Only 1334 hospitals have any type of trauma capability. There are only 221 major teaching facilities and only 186 Level I trauma centers (American Hospital Association).

Despite the importance of disaster preparedness, hospitals must consider the investment required in the face of finite resources. For example, disaster preparedness training is time-consuming and may divert resources away from other activities. Furthermore, academic centers,

community hospitals, urban hospitals, and rural facilities may have different training requirements. Some financially strapped hospitals may be reluctant to provide costly disaster preparedness training that does not benefit their financial position (Training of hospital staff, 2004).

Alternatives

Alternative one – A policy allowing hospitals to bill for emergency preparedness programs and additional staffing and equipment needs.

Hospitals bill patients and third party payers for services rendered. Until a patient arrives at the hospital to receive care, there is no payment for the staff and facility to be at the ready. The current cost structure of hospitals supports emergency preparedness by using revenues from patient care. This puts the financial burden solely on the back of hospitals. The conversion of Medicare reimbursement from cost plus to a prospective payment system and the rise of managed healthcare organizations, hospitals have been reimbursed less and less.

The cost of preparedness can be great. Baptist Hospital in Pensacola, Florida can spend about \$500,000 in preparation for one hurricane. A policy allowing hospitals to bill for emergency preparedness would allow hospitals to put some of the burden of preparedness back on the community. With more funding, hospitals will have the ability to maintain the needed supplies and equipment needed for disaster response. Hospitals will also be able to develop and test response plans. Clinical and support staff will be able to get the training necessary to care for the victims of a disaster.

Alternative two – A policy establishing a local tax to fund emergency preparedness programs and additional staffing and equipment needs.

Cities and counties levy taxes to improve parks, build schools, and pay for police, fire departments, local roads, and other services. Local government taxes are usually property taxes

but may also include sales taxes and income taxes. Some communities use local taxes to build stadiums or arenas. Imposing a tax to pay for emergency preparedness would enable hospitals and other first responders to prepare to serve the community in case of a disaster.

Alternative three – A policy introducing or increasing a state tax to fund emergency preparedness programs and additional staffing and equipment needs.

U.S. states are recognized as having a plenary power to assess taxes on their citizens and on activities that occur within their borders, so long as those taxes do not infringe on a power reserved for the federal government. Almost every state imposes "sin taxes" on products frowned upon by the community, including cigarettes and liquor and some states impose a gas tax. Many states levy personal property taxes, which are annual taxes on the privilege of owning or possessing items of personal property within the boundaries of the state. Oil and mineral producing states often impose a severance tax, similar to an excise tax in that tax is paid on the production of products, rather than on sales. Similarly, most New England states have yield taxes on timber/firewood cutting, payable as a percentage of the value cut, not the profit. Taxes on hotel rooms are common, and politically popular because the taxpayers usually do not vote in the jurisdiction levying the tax.

Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming do not levy an individual income tax. New Hampshire and Tennessee only tax interest and dividend income. Delaware, Oregon, Montana and New Hampshire have no state or local sales tax. Alaska has no state sales tax, but allows localities to collect their own sales taxes up to a state-specified maximum.

Each state has been granted the right from the Federal government to impose taxes. Therefore, each state has the ability to add a tax to fund emergency preparedness for hospitals.

With the abundance of different types of taxes, individual states will be able to choose the most appropriate method of taxing that will achieve the best outcomes based on political and social concerns.

Alternative four – Status Quo

To maintain status Quo, hospitals will continue to fund emergency preparedness and disaster response using revenues from direct patient care.

Criteria for Evaluation of Alternatives

The selected criteria are not used to judge the alternatives directly. The criteria are used to evaluate the projected outcomes that are the derivatives of the alternatives (Bardach, 2005). The criteria used to evaluate the alternatives in expanding funding emergency preparedness initiatives of hospitals are political acceptability, justice and access (Tables 1, 2, & 3). Using these three measures will allow for a broad evaluation that should encapsulate the necessary thought provoking exercises required to complete a thorough policy analysis.

Political Acceptability

Bardach (2005) stated that a feasible policy must be politically acceptable, or at least not unacceptable. Political unacceptability is a combination of two things: too much opposition or too little support. Robert A. Simanjuntak (2002) used the evaluative criterion of political acceptability in his paper "Evaluation Criteria and The Efforts to Increase Local Tax Base a Case Study of Indonesia in Decentralizing Era." He stated that because of the un-popular nature of taxes, imposing taxes requires political will and taxes are usually less sensitive politically if they are indirect and do not involve too many overt political decisions such as parliamentary decision to raise the rate of tax. Lynn A. Maguire stated that political acceptability was an important criterion for addressing conservation policy in her paper "Collaborating for Conservation: Using

Decision Analysis to Manage "Facts" and "Values" in Conservation Disputes." The criterion of political acceptability is appropriate for this analysis because of the possible political ramifications of imposing a tax to fund emergency preparedness or allowing hospitals to bill for emergency preparedness.

Justice

Equality, equity and fairness are all aspects of justice. Simanjuntak used equity as a criterion for accessing taxes in Indonesia stating that the burden of maintaining public expenditure should be borne by sections of the community in proportion to their wealth. In terms of a policy to tax the public, those that are paying the tax should feel the benefits of the tax equally. One group of taxpayers should not benefit more than any other group. In the case of emergency preparedness, every community should benefit from having a more prepared medical force to treat victims in case of an emergency.

Access

Currently in the U.S., many hospitals are more prepared for disaster response than others are. Some citizens have access to hospitals that are well prepared to treat victims of many different types of emergencies while other citizens do have access to this level of care. Evaluating the policy options using the criterion of access will analyze how well each policy allows every community to develop emergency plans, gather supplies and equipment and train adequate numbers of personnel to respond to an emergency.

It should be noted that each community should evaluate the risks of an emergency occurring and what type of emergencies are most likely to occur in their community. Funding should be used to meet the needs of each individual community based on this evaluation. For example, Oklahoma City, Oklahoma would not use funds to prepare for a hurricane but rather for

a tornado whereas San Francisco, California would require preparation for an earthquake and less preparation for a tornado based on the likelihood of an earthquake or tornado occurring in that region of the country.

Criteria for Matrix

Political Acceptability

This criterion is viewed from three perspectives. (1) How much support will the policy have from the medical community, (2) How much support will the policy receive from the public, and (3) How much support will the policy receive from the appropriate level of government.

Justice

This criterion measures whether or not a progressive scale can be used to bill or tax the public. For example, a taxpayer that has a salary of \$20,000 should pay fewer taxes than a taxpayer that has a salary of \$70,000. In addition, the amount that the hospital bills for emergency preparedness should be proportionate to the total amount of the bill.

This criterion also measures how well the funds that are gathered by the three policy options are distributed. The funds should be distributed in such a way as to give each citizen the most appropriate level of emergency services based on the community in which they live.

Access

This criterion measures the extent to which the public will have access to the appropriate emergency services for their community.

Projection of Alternative Outcomes

Alternative one – A policy allowing hospitals to bill for emergency preparedness programs and additional staffing and equipment needs.

By setting a reasonable cost on the amount of funding required for emergency preparedness, hospitals could add a fee to each bill to acquire funds to offset this cost. Hospitals are in the business of providing care to patients and have the knowledge and historical data required to properly analyze and determine the appropriate costs associated with emergency preparedness. The mechanism for billing is already in place and adding emergency preparedness as a line item in the bill would require very little work. This would allow hospitals to fund emergency preparedness activities without using their current financial infrastructure. This will also displace some of the burden of emergency preparedness that hospitals currently bear.

The political acceptability of this policy option will be very high from the aspect of the medical community. Hospitals will have the control of billing and utilizing the funds recouped from this policy option. If proper marketing and explanation is provided to the public and the public recognizes the importance of emergency preparedness, then the support for this policy will be strong. If the public supports the policy, the government will support the policy. The access created by this policy will also be favorable. Hospital leaders understand emergency preparedness and the aspects of staffing, supplies and training that are required to be appropriately prepared to treat victims during an emergency. The hospital will be able to assess and prepare to a sufficient level based on the risk of occurrence in the particular region of the country.

The justice of this alternative comes into question because of the different reimbursement rates of different hospitals around the United States. The services rendered and the patient mix

generally determines these rates. Medicare and Medicaid reimburse hospitals differently than insurance providers. Many hospitals deliver charity care to the indigent. Level I trauma centers deliver much more indigent care than hospitals that do not offer emergency services. Therefore, level I trauma centers may be reimbursed 65 cents per every dollar of care delivered where as a level II or III trauma center, or a hospital with no emergency center may be reimbursed 85 cents per every dollar of care. If this alternative was implemented, the level I trauma centers which arguably need the greatest amount of preparation would receive the lowest amount of funding.

Table 1.

Evaluation of funding options for emergency preparedness concerning political acceptability.

Policy Options	Political Acceptability		
	Medical Community Support	Public Support	Government Support
Alternative 1: Allow hospitals to bill for emergency preparedness activities	(+) Great Increase	(-) Moderate Increase	(-) Moderate Increase
Alternative 2: Local tax to fund preparedness activities	(-) Moderate Increase	Some opposition	Some opposition
Alternative 3: State tax to fund preparedness activities	(-) Moderate Increase	(-) Greater opposition	(-) Greater opposition

Note. This is compared to the status quo. (+) indicates most favorable effect(s) and (-) indicates most unfavorable effect(s).

Alternative two – A policy allowing a local tax to fund emergency preparedness programs and additional staffing and equipment needs.

A policy to administer a local tax to pay for emergency preparedness activities would be favorable to the medical community but less favorable to the public and the government. As stated previously, cities and counties already levy taxes so the infrastructure is already in place.

Local governments working with community hospitals leaders could properly assess the needs of the community and develop a reasonable amount of funding required to provide the emergency services needed in that particular community. The public, if properly informed, would recognize the need for emergency preparedness and would pose little opposition to a tax that would benefit the community in such a positive way.

The access rendered by this alternative could vary from location to location based of the size and effectiveness of the local governments. Local governments with strong infrastructures and close ties with hospital leaders will have a much better chance of ensuring that community hospitals receive the funds needed for disaster preparations and that the proper level of preparation is achieved. This brings into question the justice of this alternative. Only citizens with competent local governments will receive the benefit of having fully prepared hospitals within their communities.

Table 2.		
Evaluation of funding options for emergency preparedness concerning justice.		
Policy Options	Justice	
	Progressive Scale	Equal Distribution
Alternative 1: Allow hospitals to bill for emergency preparedness activities	(+) Great Increase	(+) Great Increase
Alternative 2: Local tax to fund preparedness activities	(+) Great Increase	(+) Great Increase
Alternative 3: State tax to fund preparedness activities	(+) Great Increase	(-) Moderate increase because of the vast difference in needs across a state.

Note. This is compared to the status quo. (+) indicates most favorable effect(s) and (-) indicates most unfavorable effect(s).

Alternative three – A policy introducing or increasing a state tax to fund emergency preparedness programs and additional staffing and equipment needs.

A state tax would be politically acceptable to the medical community but could be opposed by the public and the government. The opposition would stem from the perceived levels of preparedness needed for different communities in the state. For example, Galveston, Texas and Corpus Christi, Texas require a different level of preparedness than some of the other areas of Texas because of the risk of a hurricane. A state tax would be broad and would tax the residents of Texas the same regardless of what the preparedness needs are for the community in which they live. If the state imposed a “sin tax” or some other type of tax, this would cause some residents to pay a disproportionate amount compared to others. Furthermore, the residents that reside in areas of the state that has a greater likelihood of an emergency occurring will reap more benefit from the policy than the residents in other areas of the state will. These factors weaken the level of justice and access provided from a state tax policy.

Table 3.	
Evaluation of funding options for emergency preparedness concerning access.	
Policy Options	Access
	Provides access to appropriate emergency services
Alternative 1: Allow hospitals to bill for emergency preparedness activities	(+) Great Increase
Alternative 2: Local tax to fund preparedness activities	(+) Great Increase
Alternative 3: State tax to fund preparedness activities	(-) Moderate Increase. State could have vast difference in needs from one location to another.

Note. This is compared to the status quo. (+) indicates most favorable effect(s) and (-) indicates most unfavorable effect(s).

Analysis of Trade-offs

Alternative one would give hospitals the ability to bill for disaster preparedness. Not all hospitals are the same size and they do not all have the same capabilities. Hospitals have different risks depending on their location. For example, California hospitals must prepare for among other things, earthquakes. Florida hospitals must prepare for hurricanes. Oklahoma and other Midwest states have to prepare for tornados. There are unique aspects to every type of disaster that require differing amounts of resources to prepare sufficiently. This alternative will allow hospital leaders to bill an appropriate amount to pay for the preparedness activities that are needed for their facility.

This alternative would receive a great deal of support from hospitals officials and others associated with the healthcare industry. The public would reap the benefits of having a fully prepared hospital community if the need arose. Hospital charges have risen so sharply over the past decade that another price increase would be judged very unfavorable by some. Working with insurance companies and other third party payers would also prove to be challenging. The justice of this alternative would be challenged because there are many individuals that do not pay for their healthcare. Patients with the ability to pay would end up paying the disaster preparedness bill and those that do not pay for health care would benefit without contributing. The reimbursement rates are different for hospitals based on patient mix and services rendered. Level I trauma centers generally have the lowest reimbursed rate per dollar of care delivered. Hospitals with no emergency center tend to high reimbursement rates. The hospitals that have the highest chance of being severely affected by a disaster would receive less funding for preparation if this alternative was implemented compared to a hospital with no emergency center which is less likely to treat a high number of victims from a disaster.

Alternative two gives the local government the ability to place a local tax on its citizens to provide funding to hospitals for disaster preparedness. This alternative provides for a fair and effective way to provide a fully prepared healthcare system based on the needs of the local community. Communities with greater risk will endure higher taxes. Local governments would be able to use the increased revenue in the most appropriate way for their communities.

This alternative takes for granted that every local government will be able to take advantage of the opportunity to raise revenues for hospitals. Many local leaders could decide that there is no need to prepare because their small rural community is not at risk. There is also the possibility that the local government does not have the infrastructure needed to use the funds efficiently and effectively and make sure that the hospitals use the funds appropriately. Citizens and businesses could leave communities where the risks are higher and move to areas where local governments have not instituted local taxes for disaster preparedness.

Alternative three gives state governments the ability to levy taxes to fund disaster preparedness activities of hospitals. State governments already have the ability to use excise taxes. Figure 1 shows the current amount of taxes that states apply to each pack of cigarettes. The needs of hospitals across a state will vary and the resources needed to sufficiently prepare for disasters will vary. Therefore, citizens of one community may reap more benefit than those of another community while contributing at the same rate. Considering the populations of the small rural communities and the concentrated populations of large metropolitan areas, local governments might be forced to tax at a higher rate than larger communities might. State governments would have access to a large number of taxpayers and can tax at the same rate across the state creating more justice for this alternative.

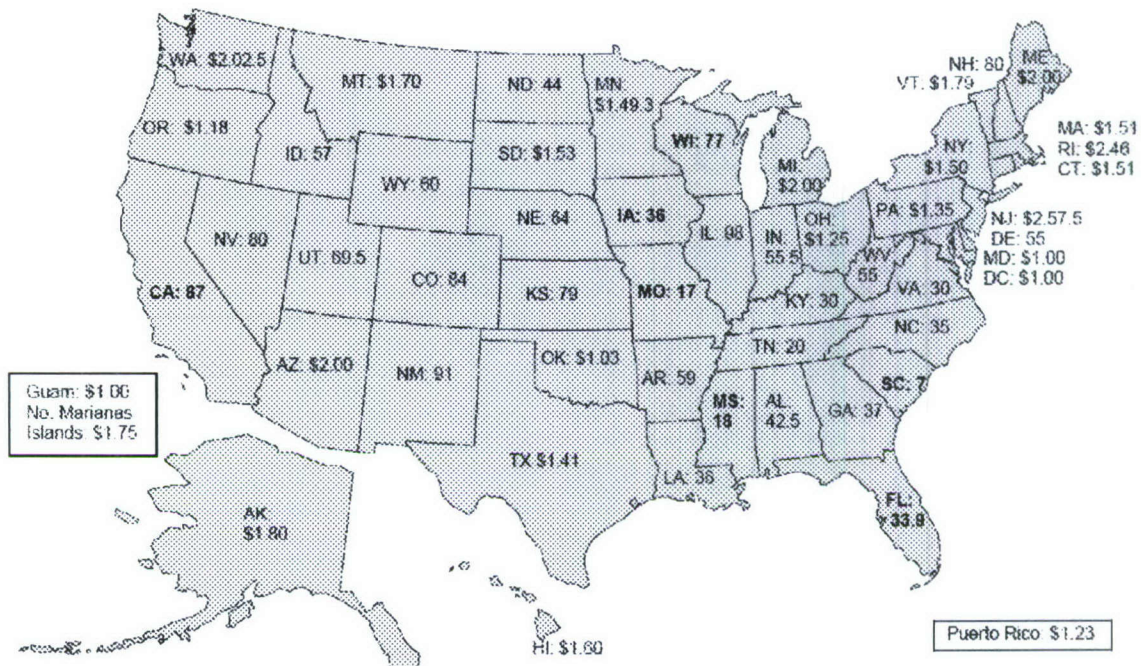


Figure 1. Current state cigarette taxes per pack
Source: www.tobaccofreekids.org

Recommendation

The goal of this policy analysis is to define alternatives in which hospitals can fund disaster preparedness activities. Alternative three provides state governments the ability to introduce or increase a current tax to fund emergency preparedness programs and additional staffing and equipment needs. One possible method for states to raise revenues to aid hospitals with disaster preparedness could be the use of an excise or sin tax. As shown in figure 1, every state imposes an excise tax on cigarettes. Table 4 shows the expected benefits by increasing the excise tax in nine southern states to the national average of 96.1 cents per pack. These benefits range from saving the lives of children to significant amounts of money saved in long-term health care costs. In North Carolina, raising the excise tax only 35.5 cents would save \$1.59 billion in long-term health care savings because of the expected decline in adult and youth smoking.

Table 4: Benefits of raising cigarette taxes

State	Tax increase to meet the nationwide state average of 96.1 cents per pack	Health Benefits To Each State From Proposed Increase				
		Kids alive today saved from becoming regular adult smokers	Kids alive today saved from premature smoking-caused death	Adult smokers saved from premature smoking-caused death	Current adult smokers who would quit	Long-term health care savings from adult & youth smoking declines
Alabama	53.6¢	49,900	15,900	4,800	18,200	\$1.05 bill.
Georgia	59.1¢	59,100	18,900	9,300	35,100	\$1.37 bill.
Kentucky	66.1¢	42,100	13,400	7,000	26,600	\$989.5 mill.
Mississippi	78.1¢	33,400	10,600	4,800	18,300	\$758.4 mill.
N. Carolina	61.1¢	69,700	22,300	10,400	39,300	\$1.59 bill.
S. Carolina	89.1¢	57,200	18,300	7,800	29,800	\$1.28 bill.
Tennessee	76.1¢	60,700	19,400	10,900	41,500	\$1.46 bill.
Virginia	66.1¢	56,200	17,900	8,500	32,300	\$1.29 bill.
W. Virginia	41.1¢	10,800	3,400	1,700	6,700	\$252.7 mill.

Source: www.tobaccofreekids.org.

In 1994, the state of Michigan raised the cigarette tax by 50 cents per pack and its cigarette tax revenues went up by more than 112 percent or by more than \$309 million (Lindblom, 2005). California is proposing to raise its cigarette tax to \$3.47 per pack, which would provide an additional \$2 billion in revenue to the California government (California Cigarette Tax, 2006). According to www.tobaccofreekids.org, a 50 cent per pack cigarette tax increase would have produced \$7.8 billion in additional cigarette tax revenues in the United States in 2006. Additionally, \$36.6 billion would have been saved in long-term health savings. Furthermore, cigarette taxes cause state smoking declines, which reduce a state's public and private smoking related costs and improve public health, including potential improvements to the productivity of many workforce members who currently smoke (Gottlob, 2004). Considering the direct benefits of increasing the cigarette tax to fund emergency preparedness and the in-direct benefits related to cigarette taxes including long-term health care expenditures, alternative three is recommended.

Conclusion

“Hospital preparedness” covers a multitude of inter-related areas of medical and non-medical disaster management. The role of hospitals has been neglected and hospitals have been left to fund disaster preparedness activities by using patient revenues. In this difficult time of increased competition and lowering reimbursement rates, hospitals need assistance in preparing for the ever-present possibility of a fabricated or natural disaster. Communities deserve to have well equipped and fully staffed hospitals to meet their needs in any event.

The healthcare delivery system is the center of the response to a disaster. Hospitals are the heart of the healthcare delivery system. In spite of all efforts to reduce threats and hazards, and to minimize the vulnerability to extreme events, these events will occur and our community hospitals will be expected to answer the call. With fully prepared hospitals, victims of large-scale accidents, natural disasters, epidemics and terrorist actions will receive the care that the United States population has grown to expect. Improving the capabilities of hospitals and finding sources for funding preparedness needs to be a top priority.

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